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ABSTRACT

The exchange of comparable data among peer institutions is discussed as an effective means of providing institutional research data and promoting interinstitutional communication and cooperation. Principles and procedures that will lead to faster, smoother, and less expensive data exchange are explained. The Southern University Teaching Load Data Exchange Program is described as a model of the data exchange process. Basic principles that should be followed in an interinstitutional data exchange program include: cooperation and coordination, simplification, cost minimization, management information principles, and flexibility. Guidelines for planning and implementing such a program are provided and include a discussion of the available alternatives, communications, data processing and analysis, and dissemination. It is suggested that the principles and procedures outlined should provide for smooth and rapid transmission of interinstitutional data, balanced resource expenditures for the participating institutions, and dissemination of meaningful information to all exchange members. (Author/SF)

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CONDUCTING DATA EXCHANGE PROGRAMS

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Abstract

The exchange of comparable data among peer institutions can be an effective means of providing institutional research data in context, and it is a challenge to develop this tool as a more effective means of inter-institutional communication and cooperation. The literature on the subject, however, dwells generally on every facet of data exchange programs except their conduct, leaving a program developer to his/her devices. This paper addresses solely the conduct a data exchange program, leaving such matters as data attributes and statistical analysis to the literature. The paper presents both principles and procedures that will lead to faster and smoother data exchange, easier and less expensive to carry out for participants. Examples from a successful project illustrate the development of a data exchange project, from initiation to fruition.

Introduction

A challenge facing institutional research is the development of more effective communications, particularly in formal and informal inter-institutional data exchange (Firnberg, 1977). Institutional research must move from reporting data to providing information on which to make the here-and-now decisions confronting academic administration (Sliger, 1979). To do this, we must have not only data, but data in context—often the context of comparable information from peer institutions. The reports required by external constituents or the pre-packaged information exchange procedures may be usable, but such reports often reflect so much the concerns of the external agencies that they cannot be used for institutional management.

The literature of inter-institutional data exchange generally dwells on the data to be exchanged (Curry, 1978; Durham, 1976; Hefferlin & Ellis, 1971; Weathersby, 1976). To develop an exchange program one has generally turned to the literature of survey research (Herriott, 1969; Orlich et al., 1975) for references. However, there are significant differences between surveys (generally of individuals) and data exchanges, and survey methods can be inappropriate in the latter endeavors. This paper specifically addresses ongoing voluntary inter-institutional data exchanges, presenting a structured set of principles and procedures that speed and smooth the communication of data exchange and make the data more meaningful to each participating institution.

The paper begins with a brief overview of the data exchange project that will provide examples for the principles and procedures which follow. There follows a section summarizing the salient principles which base a successful data exchange program. Following the principles are the stepwise procedures, the building blocks, suggested for a successful program.

The SUG Faculty Teaching Load Data Exchange

This paper references facets of the SUG Teaching Load Data Exchange program for examples of the conduct of an inter-institutional data exchange. SUG, the Southern University Group, consists of institutional research officers of 26 large public southern universities who share data and discuss mutual concerns. For two years (1975-76) LSU co-ordinated the teaching load data exchange (Ahrens & Firnberg, 1978) comparing the student credit hour productivity of faculty by discipline for participating member institutions. Data were collected from participating institutions on pre-printed forms, then keypunched, analyzed, and disseminated by LSU. At the Fall 1978 SUG meeting, Virginia Tech offered to coordinate the program. Work began in the Winter of 1979, to begin with Fall 1978 data.

In addition to the decisions and logistical operations necessary to get any data exchange program off the ground, we wanted to do some new things and to make the program relatively painless for all concerned. The keys were to make the computer do as much work as possible and to minimize the human effort. First, data were transmitted via punched cards — not transcribed onto questionnaire forms and keypunched at Tech. That permitted machine data editing to be done by the participants, rather than by the coordinator, and we provided a machine-independent COBOL computer program to do just that.

Further, since we required programs for data processing and analysis, it required little extra effort to write them in ANS COBOL, usable on almost any computer. For flexibility in aggregating HEGIS discipline codes, so that similar disciplines could be compared, we made the programs table driven (via external card decks of translation tables that could be modified to change the program function without changing the program). Institutional submissions,

therefore, could be preprocessed to have their codes temporarily changed for any desired analysis. The programs and tables were shipped in card form, with accompanying documentation, to any participant wishing them. Those having the programs could take advantage of the table-driven feature by reassigning submitted HEGIS codes at will in the preprocessing program to aggregate submitted data in a form more meaningful to their own institutions.

The data translation tables performed multiple functions. The HEGIS code card deck could be used not only for temporary code conversions, but also for data editing (insuring no odd codes present in the data cards), for report program discipline titles, and for a printed list of codes to enclose with exchange instructions. There was a further multiuse card deck, used to check institution FICE codes in the data, to print report program institution titles, to print a membership roster, and to print mailing labels for correspondence.

Another feature was design of the analysis reports such that they were self-explanatory (no computerese or statistical hieroglyphics), their data were meaningfully displayed, and the display fit on standard 8 1/2 x 11 paper. The display format permitted easy, direct use of the data by non-technical people without the need for "decoding," and the standard paper size permitted easy shipping and filing.

Once emplaced, the new features made coordinating-office efforts in conducting the data exchange program largely a matter of "pushing the right button" on the computer. The flexibility of the system was shown as a result of significant changes in the data collected, their processing, and their analysis to be made for the Fall 1979 cycle — implemented in two weeks, well in advance of beginning the exchange, including reformatting of the Fall 1978 data cards for historical consistency. That proven flexibility, added to the general success of Fall 1978 program, lead to our presenting the project as exemplary of data exchanges that work.

Principles of a Successful Data Exchange

In all phases of a voluntary inter-institutional data exchange program, certain basic principles should be followed in order to achieve success. They are summarized below:

1. Cooperate and Coordinate. Don't Legislate.

The essence of a voluntary inter-institutional data exchange program is that it is voluntary. Prospective participants will apply some sort of "what's in it for me?" analysis before deciding to join. One can look to Mims and LeLong (1976) to see the results of a data exchange that ignored this very important principle:

> since the exchange was designed to achieve University of Michigan purposes, rather than goals developed jointly by the university and the other institutions, many of those approached viewed the ... information as not particularly helpful for their purposes and, consequently, were less interested in participating.

To begin the exchange, they had to have the Michigan president call his peers at the target institutions to request participation as a favor, and they had to offer to use data in whatever form was handy (and use coordinating office resources to translate "their data into our format"). As a consequence, coordinator's office expended some 16 man-months of effort over 18 months on a 15-institution program. After listing several of the drawbacks encountered in the program, they complained that "Few ready and realistic tools for surmounting these obstacles can be found, especially in an IR office that ... lacks authority to mandate the collection and exchange of data." The important principle, therefore, is to develop a cooperative effort which can help all participants.

2. Keep it Simple.

Wherever possible, keep it simple and make it easy for all concerned, the participants and the coordinator. True simplicity can be difficult to attain. It is tempting to succumb to the "While you're there, why not also ..." syndrome. Yet another problem with the Michigan project (Mims and LeLong, 1976) was

> Although efforts were made in the design stage to keep the data requirements to a minimum, we found that we had requested data at a level of detail far beyond what could be analyzed in a meaningful manner.

Everyone benefits from simplicity.

3. Cost Minimization/Effectiveness

A data exchange program should require a minimum of resource expenditure on the parts of both the participants and the coordinator. The cost/benefit ratio can be improved by lowering cost as well as by increasing benefit. The better the ratio, the more likely a decision to participate, thus a broader span of institutions in the comparative data. In this era of constrained resources, the prospect of too much cost can cause someone to decline to participate in even the most worthwhile project.

An example of an expensive exchange is the Virginia IEP (Information Exchange Procedures), which uses NCHEMS (National Center for Higher Education Management Systems) software in reporting to the Commonwealth. In that required program, institutions spend an average of $2 per student in routine system operation each year (McLaughlin, 1978). At Virginia Tech, those costs are compounded by the drain of two-person years of effort each year. It is safe to conjecture that, were it not mandatory, the individual institutions would make other use of their resources.

4. Apply Management Information Principles

A data exchange program should base academic administration decisions at each participating institution. As such they must meet the characteristics of any good management information, as specified in Drucker (1974) for example:

A. Economy. Strive for the minimum information necessary for a decision.
B. Meaning. The data must be as self-explanatory as possible.
C. Appropriateness. Always consider the context of decisions to be made.
D. Congruency. Display the data to appropriate precision.
E. Timeliness. The data must be in time to influence the decision.
F. Simplicity. Display the data in a simple, straightforward manner.
G. Action. The data must be action-oriented, not simply "interesting."

While it is difficult to ensure that the data exchange product has all the above characteristics, the extra effort may well be worth it in the long run.

5. Flexibility

The compromises necessary in making inter-institutional data comparable preclude those data being "all things to all people." However, the data exchange program should be flexible enough to meet the needs of all participants, both here-and-now flexibility and the flexibility to adapt over time.

An example of flexibility can be seen in the SUG Teaching Load data exchange. Those participants using computer programs we developed did not have to live with either the HEGIS discipline codes as submitted by other participants or as reassigned by the coordinator (for "better" comparability, aggregating similar disciplines under a single code). Without changing the program at all, the participant could try any desired reaggregation, by using the table-driven feature to make temporary code conversions prior to data analysis.

Before Starting: Consider the Options

When planning an inter-institutional data exchange, one of the first questions should be "Is this trip necessary?" Of Curry's (1978) six points to consider in a data acquisition project, one has particular relevance:

> Is a suitable proxy for the information available in reports which are already being provided ...?

One might look to the various national data bases described by Weathersby (1976) and find that all the source data are already present (as a result of the annual HEGIS survey, for example) and available for analysis. As Norris and Heydinger (1976) point out, however, the national data bases of the federal government and of the various educational associations serve the needs of institutional management by accident, if at all. Rather they "mirror the needs and biases of their creators and demonstrate the limitations of such large scale activities."

One major "inherent limitation" of the large public data bases is lack of timeliness. A common complaint about HEGIS data, for example, has been that by the time NCES makes them available, they are of interest for historical purposes only. The situation is changing, however. Fall enrollment data — OE Form 2300-2.3 — are now available on magnetic tape by April. Further, NCES is investigating HEGIS submissions via tape, rather than on questionnaires whose data must be laboriously transcribed, to speed processing further.

Data are not the only resources possibly available to one planning an inter-institutional data exchange. Data collection, processing, and analysis instruments are also on the market. The initials that spring to mind in this regard are "IEP," the Information Exchange Procedures developed and hawked by the National Center for Higher Education Management Systems.

IEP data bases, whose ultimate purpose is the calculation of costs by discipline and level, contain a wealth of information. The problem is that building those data bases requires either a very simple or a superbly managed institution — or a lot of work. The last is the experience of the authors, as was mentioned earlier in the discussion of the principle of cost minimization. Further the data can not be completely and correctly integrated until well after the end of the fiscal year, often not as timely as desirable.

Not all institutions have difficulty with building IEP's data base certainly, but their representatives were in the minority at a recent national panel discussion on the subject (Hoffman, Bloom et al. 1979). Further, IEP's report generators produce what has been characterized as gobbledygook, unreadable by those not steeped in their mysteries and requiring extra effort to display their contents in a form that academic administrators will accept (Bloom 1979). For improved information communication, special report programs may have to be written to replace the IEP products.

Consideration of the data processing instruments for a data exchange need not be limited to home-grown versus IEP. It is possible that another group of institutions is already exchanging the data of interest. While the data themselves are often considered proprietary, the system of collection, processing, and analysis instruments may well be available for use by others. A useful package may well be "portable," easily transferred to the planned application, and so save a great deal of resource expenditure.

Existing data and data collection/analysis instruments may or may not be available and appropriate to a data exchange planner from other sources. In the spirit of not "reinventing the wheel," those other sources should be investigated as a part of the planning process. The cost of such an investigation is low, and the potential benefits are high.

Communications

The final comparative data are usually what are associated with "communications" in inter-institution information exchange programs (Firnberg 1977). There are, however, other communications that must be taken into account by the survey co-ordinator.

The first matter under communication can be called "advertising" for want of a better expression. All prospective participants need to know of the exchange program, its benefits to them, and its cost. The SUG Teaching Load Data Exchange has seen more participants, and many more wishing to be active by dealing with the data themselves as more has become known of the project, by more informative communications from the coordinating office and by discussion of the exchange results during the last (Spring 1979) SUG meeting.

Another communication, one that is an integral part of the co-ordination function, is the post-exchange survey of participants. While the Fall 1978 SUG Teaching Load data exchange was still fresh in everyone's mind, we sent a questionnaire asking for thoughts on several suggestions made and soliciting criticism on every imaginable portion of the exchange project. The responses were most valuable in making the data exchange of even more mututal value.

The final element of communications discussed here is continued and active person-to-person communication. Most problems with the Fall 1978 SUG Teaching Load Data Exchange Program could have been avoided with more use of the telephone. As an example, each invitation to participate in the exchange project had a tear-off "intent" form with a few blocks to be checked off and returned to us for planning. For the Fall 1978 exchange, we assumed that no response meant no interest. Several surprise communications disabused us of that notion, and we now make follow-up calls to the non-respondents.

Data Processing and Analysis

In the context of this paper, "data processing" encompasses everything done with the inter-institutional data exchanged in the program. It does not begin or end at the computer room door. Rather it starts with the data collection instrument and does not end until after the last analysis reports have been distributed to exchange participants.

Data Collection

With the above thought, this section on data processing begins with the instrument for data collection. The SUG teaching load data are now sent by participants on punched computer cards. This is a step up from questionnaires in that the participant's computer is talking directly to the coordinator's. No "typos" creep in to impede communication, no human data transcription effort is required, and it is not necessary to send data listings to participants for verification. The concept of transmitting data in machine readable form is certainly not new. Norris and Heydinger (1976) have noted that some state governments have departed from pre-printed forms, collecting required data from their public institutions on magnetic tape, as with Virginia's IEP.

The data card used in the current SUG Teaching Load Data Exchange is shown in Figure 1. Each participating institution completes one card per instructional department, perhaps 100 cards from each participant. This corresponds to a card deck that is an easily mailable 3/4 inch thick, and it gives one reason for not communicating by magnetic media. Those data would fit on less than five inches of a magnetic tape—much dead weight to ship, especially on a standard 2,000-foot reel. A second reason for using cards is

Figure 1.

Data Card Format for the SUG Teaching Load Data Exchange

Institutional Research
Virginia Tech
Blacksburg, VA 24061

CARD FORM LAYOUT

5 - 1.

Proc ID: S25TL

1-4	5-8	9-14	15-74	75-80
Term: Year TYY	FICE Code	College/School: Institutionally Defined	Department Name: Institutionally Defined	HEGIS Code

81-84	85-88	89-92	93-96	97-100	101-104	105-108	109-112	113-116	117-120	121-124	125-128
IS Cod	FTE of State-Funded Faculty in Dept: Instruct. Funds: Ranked Faculty	FTE of State-Funded Faculty in Dept: Instruct. Funds: Other Faculty	FTE of State-Funded Faculty in Dept: Other Funds: Ranked Faculty	FTE of State-Funded Faculty in Dept: Other Funds: Other Faculty	SCH Produced (Crs Level): Lower Div	SCH Produced (Crs Level): Upper Div	SCH Produced (Crs Level): Grad				

Remarks: Term — TYY Format. T= F-Fall,W-Win,S-Spr,U-Sum. Ex: Fall 1978 = F78
FICE Code — USOE Standard, leading zeros required.
HEGIS Code — USOE Standard, leading zeros required.
Sub-number — USOE Standard, used for certain XX99 codes, else blank.
Example: 0899-1 = Agricultural Education.
FTE — Faculty paid from permanent state funds, 2 implied decimals.
Instructional: Paid from Instr. & Dept. Research Funds.
Ranked: Only Prof, Assoc Prof, Asst Prof, and Instr.

inter-machine compatibility. The 80-column card is almost everywhere, and there is no difficulty involved in reading one produced by the punch of any manufacturer.

A third reason for using data cards is that the 80-column limitation imposes a certain economy. It must! No amount of photo reduction will get more columns of data onto an 80-column card. The limitation is quite useful in preventing a common problem with questionnaires: asking for more data than can be used (Cooley, 1969).

Data Editing and Preparation

With the traditional questionnaire method of data collection, this phase of data processing—as has been alluded to already—can be as time and resource consuming as it is critical. Using direct computer-to-computer communications makes this step no less critical. Just faster, easier, and cheaper.

The current SUG Teaching Load Data Exchange program, using data cards, has no data preparation phase to speak of, so effort could be lavished on the computer program to edit the submitted data. Here again, the "economy" of the data—the minimum needed—was a plus. With few data items to be individually checked, and few interactions among those data (cross tabulations for example), the scope of the editing needed was well within human visualization.

Each edit criterion is listed in the SUG Teaching Load Data Exchange instructions, and each is enforced by the computer program available to all participants. The edit program is a particularly friendly one, pointing out the detected offenses in an easily understandable manner (Figure 2 shows a sample of the computer program's messages.), and it is easy to use. Nonetheless, the first thing done at Tech upon receipt of a set of data cards is passing them

Figure 2.

Sample Data Edit Messages for the SUG Teaching Load Data Exchange

```
S02: EDIT SUG-25 TEACHING LOAD DATA CARDS.                TERM F7  DATE:08/16/79

                                                          EDIT MESSAGES
                          TEACHING LOAD DATA CARD

S78 003754 AGRICULTUR AGE          0903  00804000500000000000 00230006670004
S78                                      CARD TERM ~= EDIT TERM

F79 103754 AGRICULTUR AGE          0903  00804000500000000000 00230006670004
    103754                               UNKNOWN FICE CODE

F79 003754 AGRICULTUR AGE          9999 X00080000500000000000 00230006670004
                                   9999 X    NOT USOE-STANDARD HEGIS
                                             UNKNOWN HEGIS CODE
                                             CONVERT CODE NOT SPACE.
                                             SCH/FTE RATIO  724 IS HI.

F79 003754 AGRICULTUR AGE          0903  00801000500FREDD00000 00230006670004
                                             FREDD00000
                                             NON-NUMERIC FACULTY FTE

F79 003754 AGRICULTUR AGE          0903  00000000001111111111 00230006670004
                                             INSTRUCTIONAL F.T.E. = 0
                                             SCH/FTE RATIO    4 IS LOW

FJU K0375J NKRICUJUNK AGEJUNK      JUNK  0JUN20000000000000000 00000000000002
FJU K0375J                         JUNK  0JUN2
                                             CARD TERM ~= EDIT TERM
                                             UNKNOWN FICE CODE
                                             NOT USOE-STANDARD HEGIS
                                             UNKNOWN HEGIS CODE
                                             NON-NUMERIC FACULTY FTE
                                             INSTRUCTIONAL F.T.E. = 0

F79 003754 AGRICULTUR AL           0403  00000000000000000000 00000000000000
                                   0403      S03 CHANGES HEGIS TO 0411
                                             INSTRUCTIONAL F.T.E. = 0
                                             TOTAL S.C.H. = 0

F79 003754 AGRICULTUR ANSC         0100  05555055550000000000 00202002020020
                                   0100      HEGIS XX00 IS NOT VALID.
                                             SCH/FTE RATIO    5 IS LOW
```

**Note —— This sample output has been compressed for display purposes.

through the edit program. It is a part of the co-ordinating function to not let participants embarass themselves unnecessarily. Our experience with data-card data submittal is that there are few errors or anomalies that occur, so checking back with the participants is quite easy as well as a friendly thing to do.

Data Analysis

The various statistical methods for analyzing data gathered via educational research are well documented, and will not be discussed here. In general, however, we would recommend keeping things straightforward. Of far more importance than the mathematical or statistical elegance of the analysis of inter-institutional data is whether the data are meaningfully compared. The problem of how best to view the data for improved comparability becomes rather messy, for there is no reason to think that anyone's idea of comparability is less valid than anyone else's.

In the SUG Teaching Load Data Exchange program, each participant has the ability to temporarily change or restructure departments just before processing an analysis. Only those participants receiving and using Tech's computer programs can use that ability, of course; the others must accept the comparison reports reflecting the coordinator's preferences for comparability.

Data (Information) Display

Anyone who has ever tried to let a vice president loose on the reports produced by NCHEMS's standard IEP programs (Byers & Bowers, 1975) knows full well that how data are displayed can be the difference between communicating information and reaping the whirlwind of confusion. Those "aids to management" appear to violate every principle of management information. Presenting the comparative data from an inter-institutional exchange program is the essence of

the program. It should be given careful thought with respect to communicating maximum academic management information. Further, the direct computer output (from the data analysis) — not just some final written report — should be included in this thinking.

It can save a great deal of time all around, and improve the usefulness of the data exchange project, if the computer printout does not have to be accompanied by several pages of decoding sheets and a translator. Figures 3 and 4 show two examples of computer output from data exchange programs. The first example (Figure 3) is from IEP (Byers & Bower, 1975), a page of the Program Unit Cost Report, photo-reduced from its 14 x 11 actual size. In the example IEP report, there are three good points in the title field: the report is identified by a title that is relatively understandable, the producing program (DMM-07) is shown, and the date the report was produced is prominent. There is, however, no clue as to the applicable time period. Knowing when a report was produced is "nice," but knowing to what period of time it refers is vital.

The column headings are almost in English, but the periods (".") where blanks should be are distracting, and the text is far more cryptic than would ever be acceptable in a typed table. The principle of "congruency" is violated badly in the displayed numbers, with cost per credit hour to the hundredth of a penny and SCH to 1/10,000 credit. The numbers are displayed to far greater precision than their accuracy warrants.

Compare the IEP display format and content (Figure 3) with the example of the comparison report currently produced by Virginia Tech for the SUG Teaching Load Data Exchange program (Figure 4). Though reduced somewhat for display here, the report is layed out for standard 8 1/2 by 11 paper with space for 3-hole punching. The title area tells what one would want to know about the document, and it has the report's effective date.

Figure 3.

Example IEP Program Unit Cost Report *

DMM-07 SCHEMS AT WICHT PAGE 3
C00003.00 PROGRAM UNIT COST REPORT 01-01-75

PROGRAM	DISCIPLINE	DIR.COST/CR	CREDIT.HOURS	DIRECT.COST
	1.1.0703.30	28.7037	9.0000	258.3333
	1.1.0703.50	48.0952	9.0000	432.8568
PRG.0703.LD	**TOTALS**	26.6058	45.0000	1,197.4401
PRG.0703.MA	1.1.0703.50	48.0952	27.0000	1,298.5704
	1.1.0705.30	101.0000	9.0000	909.0000
	1.1.0705.50	102.6667	9.0000	924.0003
PRG.0703.MA	**TOTALS**	69.5905	45.0000	3,131.5707
PRG.0703.UD	1.1.0101.20	8.9365	27.0000	241.2855
	1.1.0101.30	15.8333	18.0000	284.9994
	1.1.0101.50	21.7778	18.0000	392.0004
	1.1.0203.20	13.2125	18.0000	237.8250
	1.1.0203.30	29.8919	18.0000	538.0542
	1.1.0203.50	25.7670	27.0000	695.7090
	1.1.0301.20	21.6667	18.0000	390.0006
	1.1.0301.30	21.5741	18.0000	388.3338
	1.1.0301.50	43.5185	9.0000	391.6665
	1.1.0306.20	36.9511	9.0000	332.5599
	1.1.0306.30	41.5806	18.0000	748.4508
	1.1.0306.50	71.9259	9.0000	647.3331
	1.1.0420.20	62.2222	9.0000	559.9998
	1.1.0420.30	158.5556	9.0000	1,427.0004
	1.1.0420.50	255.6296	9.0000	2,300.6664
	1.1.0422.20	11.0000	9.0000	99.0000
	1.1.0422.30	9.8889	18.0000	178.0002
	1.1.0422.50	13.4444	9.0000	120.9996
	1.1.0511.20	20.7037	9.0000	186.3333
	1.1.0511.30	32.0278	9.0000	288.2502
	1.1.0511.50	36.8333	18.0000	662.9994
	1.1.0512.20	10.3778	9.0000	93.4002
	1.1.0512.30	23.4444	18.0000	421.9992
	1.1.0512.50	33.1481	9.0000	298.3329
	1.1.0703.20	18.7500	9.0000	168.7500
	1.1.0703.30	28.7037	27.0000	774.9999
	1.1.0703.50	48.0952	9.0000	432.8568
	1.1.0705.20	101.0000	18.0000	1,818.0000
	1.1.0705.30	101.0000	18.0000	1,818.0000
	1.1.0705.50	102.6667	9.0000	924.0003
	1.1.0801.20	5.0909	18.0000	91.6362
	1.1.0801.30	5.5960	18.0000	100.7280
	1.1.0801.50	19.0185	9.0000	171.1665
PRG.0703.UD	**TOTALS**	38.2083	477.0000	18,225.3375
PRG.0801.LD	1.1.0101.20	8.9365	9.0000	80.4285
	1.1.0203.50	25.7670	9.0000	231.9030
	1.1.0301.30	21.5741	9.0000	194.1669

* From Byers and Bowers, 1975.

Figure 4.

Sample Inter-Institution Comparison Report
From the SUG Teaching Load Data Exchange

S05: SUG-25 TEACHING LOAD DATA EXCHANGE FALL TERM 1978 DATE:08/16/79

<-------- Note 1 -------->
<HEGIS CODES AS SUBMITTED> INTER-INSTITUTION COMPARISON

INSTITUTION	<Note 2> FTE INSTR FAC RANKED	OTHER	STUDENT CREDIT HRS(CRS LEVEL) LD	UD	GR	TOT	TOTAL-SCH PER RNKD	PER TOT
HEGIS DISCIPLINE 0506 BUSINESS MANAGEMENT AND ADMINISTRATION								
bbbbb STATE U	8.38	2.11	3,240	749	141	4,125	465	375*
U ccccccccccc	17.48	0.00	2,913	4,830	232	7,975	456	456
ee ee U	16.50	7.25	6,669	3,627	953	11,249	682*	474
** TOTALS	42.86	9.36	12,822	9,201	1,326	23,349	545	447
** STANDARD DEV							128	53
HEGIS DISCIPLINE 0500 BUSINESS AND MANAGEMENT (0501 THROUGH 0599)								
U OF aaaaaaaa	43.54	23.04	5,893	11,746	2,014	19,653	451	295
bbbbb STATE U	47.11	8.27	7,486	13,557	779	21,822	463	394
U ccccccccccc	51.54	2.26	8,571	13,248	795	22,614	439	420*
ee ee U	84.75	17.50	9,972	19,225	2,707	31,904	376*	312
** TOTALS	226.94	51.07	31,922	57,776	6,295	95,993	423	345
** STANDARD DEV							39	61
HEGIS DISCIPLINE 0000 ALL DISCIPLINES (0101 THROUGH 5599)								
U OF aaaaaaaa	543.23	277.82	115,884	50,388	24,182	190,454	351*	232
bbbbb STATE U	479.78	78.26	70,675	59,500	5,861	136,036	284	244
U ccccccccccc	416.06	31.42	64,923	44,276	15,926	125,125	301	280*
ddd STATE UNIV	929.50	104.80	132,481	68,305	18,573	219,359	236	212
ee ee U	979.95	75.94	114,419	80,211	30,706	225,336	230	213
** TOTALS	3348.52	568.24	498,382	302,680	95,248	896,310	268	229
** STANDARD DEV							50	28

* INDICATES A PRODUCTIVITY RATIO SIGNIFICANTLY DIFFERENT FROM AVERAGE.

Note 1. This field is spaces if program S03 has converted HEGIS Codes from those initially submitted to codes preferred for inter-institutional data comparison.

Note 2. Depending on the 'SYSIN' option, this field reads either
A. INSTR - Only instructional faculty F.T.E. are shown.
or
B. STATE - All permanent state faculty F.T.E. are shown.

Note 3. This sample output has been compressed for display purposes.

The text still uses abbreviations, but no less acceptably than in many published tables, the numeric data are displayed to reasonable precision. and the program notes those institutions with loads significantly different from average. There seems to be no question as to which of the sample display formats would result in better management information.

The comparison reports could have greater value in academic administration. No institution, after all, is organized by HEGIS discipline. One good idea arising from the Michigan study (Mims & LeLong, 1976) is that of reaggregation of "selected departments to produce a common set of similar units in the two schools being compared," to restructure the comparative data so that a dean can see not only his/her college organization, but also data from peer institutions as if they were organized in the same way. The SUG Teaching Load Data Exchange is making a step in that direction with the Fall 1979 cycle, offering a module for the data processing system that will automatically convert other-institution data to align with any given institution's college/department structure. The result will be identical with the teaching load comparison report shown in Figure 4, but with the key institution's colleges replacing the HEGIS major division titles (XX00 codes) and its department names replacing the HEGIS discipline titles (XXYY).

Data Dissemination.

The last processing step in an information exchange program is disseminating the comparison information to the exchange participants. For the Fall 1978 SUG Teaching Load Data Exchange, we did this twice. When 80 percent of the participants' data had arrived, we produced a "draft" copy of the comparison report and sent it to everyone. This had several virtues. Some schools noted previously overlooked anomalies in their data entries that only really stood out

in context, one institution learned (from its absence) that the Postal Service had lost its submission, and the non-respondents were gently reminded that their submissions were due.

A principal advantage of submitting data in machine-readable form shows itself upon receipt of the last data packet — or if participants all submit their data on time in a batch. Turnaround time, without the necessity of transcribing questionnaire data, is quite rapid. The material can be ready for mailing within a day, greatly increasing the timeliness of the comparison information to the participants. A second advantage accrues to those participants desiring the raw data for their own analyses. They were already familiar with the content and format of the cards (the same as they themselves submitted), so they could have their own analysis procedures already employed upon data receipt. This method can get meaningful information to the appropriate academic administrator in the participant's institution in a much more timely manner.

Concluding Remarks

This paper has addressed a facet of inter-institution data exchange programs that is generally overlooked in the literature — how to conduct them in a manner that speeds and smooths the inter-institutional transmission of data, that balances the resource expenditures of the participants and of the coordinating office, and that provides more meaningful information to all exchange participants. The principles and procedures presented here, and the examples used to illuminate them, should stand a prospective data exchange developer in good stead with respect to a new information exchange program and could be of value in improving existing exchange programs.

List of References

Ahrens, Stephen W, & Firnberg James W. An interinstitutional analysis of faculty teaching load. Paper presented at the Eighteenth Annual Forum, Association for Institutional Research, Houston, May 1978.

Bloom, Allan M. The value of IEP in internal academic administration. Paper presented at the Virginia AIR Conference, Norfolk, April 1979.

Byers, Maureen, & Bower, Cathleen. IEP Analysis and Use: Single Institution Data. National Center for Higher Education Management Systems, Boulder CO, 1975.

Cooley, William W. Data processing and computing. In R L Ebel (Ed.), Encyclopedia of Educational Research, 4th Ed., New York: MacMillan, 1969.

Curry, Denis J. The state council of education as collector and transmitter of data. Paper presented at the American Educational Research Association conference (Session 3.07), Toronto, 1978.

Drucker, Peter F. Management. New York: Harper and Row, 1974 (498-504).

Firnberg, James W. Institutional research 1977: progress and promise. Paper presented at the Seventeenth Annual Forum, Association for Institutional Research, Quebec, May 1977.

Hefferlin, J B Lon, & Phillips, Ellis L Jr. Communications between institutions. In Information Services for Academic Administration. Jossey-Bass, San Francisco, 1971.

Herriot, Robert E. Survey research method. In R L Ebel (Ed.), Encyclopedia of Educational Research, 4th Ed., New York: MacMillan, 1969.

Hoffman, Hillard R; Bloom, Allan M; et al. Cost studies: their uses and misuses in academic administration. Panel discussion presented at the Nineteenth Annual Forum, Association for Institutional Research, San Diego, May 1979.

McLaughlin, Gerald W. Data bases at a state institution - costs, uses, and needs. Paper presented at the Eighteenth Annual Forum, the Association for Institutional Research, Houston, May 1978.

Mims, R Sue, & LeLong, Donald C. The Michigan peer institutions information study. In M W Peterson (Ed.), Benefiting From Interinstitutional Research. New Directions for Institutional Research, Vol. 3, No. 4, Winter 1976.

Norris, Donald M, & Heydinger, Richard B. Effects of computer technology. In M W Peterson (Ed.), Benefiting From Interinstitutional Research. New Directions for Institutional Research, Vol. 3, No. 4, Winter 1976.

Orlich, Donald C, Clark, Patricia A, Fagan, Nancy M., & Rust, Gary A. Guide to Sensible Surveys. Olympia WA: Research Coordinating Unit, Washington State Commission for Vocational Education, 1975.

Sliger, Bernard F. Administrative use of institutional research in the 1980's. Paper presented at the Nineteenth Annual Forum, Association for Institutional Research, San Diego, May 1979.

Weathersby, George B. Large-scale data bases, standards, and exchange procedures. In M W Peterson (Ed.), Benefiting From Interinstitutional Research. New Directions for Institutional Research, Vol. 3, No. 4, Winter 1976.